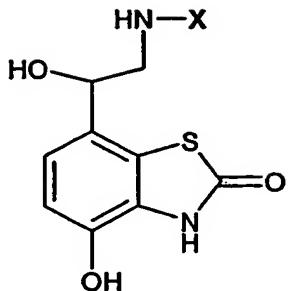


CLAIMS**1. A compound of formula I**

in free or salt or solvate form, wherein

X is $-R^1-Ar-R^2$ or $-R^a-Y$;

Ar denotes a phenylene group optionally substituted by halo, hydroxy, C_1-C_{10} -alkyl, C_1-C_{10} -alkoxy, C_1-C_{10} -alkoxy- C_1-C_{10} -alkyl, phenyl, C_1-C_{10} -alkyl substituted by phenyl, C_1-C_{10} -alkoxy substituted by phenyl, C_1-C_{10} -alkyl-substituted phenyl or by C_1-C_{10} -alkoxy-substituted phenyl;

R¹ and **R²** are attached to adjacent carbon atoms in **Ar**, and either **R¹** is C_1-C_{10} -alkylene and **R²** is hydrogen, C_1-C_{10} -alkyl, C_1-C_{10} -alkoxy or halogen or **R¹** and **R²** together with the carbon atoms in **Ar** to which they are attached denote a 5-, 6- or 7-membered cycloaliphatic ring;

R^a is a bond or C_1-C_{10} -alkylene optionally substituted by hydroxy, C_1-C_{10} -alkoxy, C_6-C_{10} -aryl or C_7-C_{14} -aralkyl; and

Y is C_1-C_{10} -alkyl, C_1-C_{10} -alkoxy, C_2-C_{10} -alkenyl or C_2-C_{10} -alkynyl optionally substituted by halo, cyano, hydroxy, C_1-C_{10} -alkyl, C_1-C_{10} -alkoxy or halo- C_1-C_{10} -alkyl;

C_3-C_{10} -cycloalkyl optionally fused to one or more benzene rings and optionally substituted by C_1-C_{10} -alkyl, C_1-C_{10} -alkoxy, C_3-C_{10} -cycloalkyl, C_7-C_{14} -aralkyl, C_7-C_{14} -aralkyloxy or C_6-C_{10} -aryl, where C_3-C_{10} -cycloalkyl, C_7-C_{14} -aralkyl, C_7-C_{14} -aralkyloxy or C_6-C_{10} -aryl are optionally substituted by halo, hydroxy, C_1-C_{10} -alkyl, C_1-C_{10} -alkoxy or halo- C_1-C_{10} -alkyl;

C_6-C_{10} -aryl optionally substituted by halo, hydroxy, C_1-C_{10} -alkyl, C_1-C_{10} -alkoxy, C_1-C_{10} -haloalkyl, phenoxy, C_1-C_{10} -alkylthio, C_6-C_{10} -aryl, 4- to 10- membered heterocyclic

ring having at least one ring nitrogen, oxygen or sulphur atom, or by NR^bR^c where R^b and R^c are each independently C_1 - C_{10} -alkyl optionally substituted by hydroxy, C_1 - C_{10} -alkoxy or phenyl or R^b may additionally be hydrogen;

phenoxy optionally substituted by C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy or by phenyl optionally substituted by C_1 - C_{10} -alkyl or C_1 - C_{10} -alkoxy;

a 4- to 10-membered heterocyclic ring having at least one ring nitrogen, oxygen or sulphur atom, said heterocyclic ring being optionally substituted by halo, C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy, halo- C_1 - C_{10} -alkyl, C_6 - C_{10} -aryl, C_7 - C_{14} -aralkyl, C_7 - C_{14} -aralkyloxy, C_1 - C_{10} -alkoxycarbonyl or a 4- to 10-membered heterocyclyl- C_1 - C_{10} -alkyl;

- NR^dR^e where R^d is hydrogen or C_1 - C_{10} -alkyl and R^e is C_1 - C_{10} -alkyl optionally substituted by hydroxy, or R^e is C_6 - C_{10} -aryl optionally substituted by halo, or R^e is a 4- to 10-membered heterocyclic ring having at least one ring nitrogen, oxygen or sulphur atom which ring is optionally substituted by phenyl or halo-substituted phenyl or R^e is C_6 - C_{10} -arylsulfonyl optionally substituted by C_1 - C_{10} -alkylamino or di(C_1 - C_{10} -alkyl)amino;

- SR^f where R^f is C_6 - C_{10} -aryl or C_7 - C_{14} -aralkyl optionally substituted by halo, C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy or C_1 - C_{10} -haloalkyl; or

- $CONHR^g$ where R^g is C_1 - C_{10} -alkyl, C_3 - C_{10} -cycloalkyl or C_6 - C_{10} -aryl.

2. A compound according to claim 1, in which

X is $-R^1-Ar-R^2$ or $-R^a-Y$;

Ar denotes a phenylene group optionally substituted by halo, C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy or by C_1 - C_{10} -alkoxy substituted by phenyl;

R^1 and R^2 are attached to adjacent carbon atoms in Ar , and

either R^1 is C_1 - C_{10} -alkylene and R^2 is hydrogen,

or R^1 and R^2 together with the carbon atoms in Ar to which they are attached denote a 5-, 6- or 7-membered cycloaliphatic ring;

R^a is a bond or C_1 - C_{10} -alkylene optionally substituted by hydroxy, C_6 - C_{10} -aryl or C_7 - C_{14} -aralkyl; and

Y is C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy or C_2 - C_{10} -alkynyl; C_3 - C_{10} -cycloalkyl optionally fused to one or more benzene rings and optionally substituted by C_1 - C_{10} -alkyl, C_3 - C_{10} -cycloalkyl, C_7 - C_{14} -

aralkyl, C₇-C₁₄-aralkyloxy optionally substituted by halo, or by C₆-C₁₀-aryl optionally substituted by C₁-C₁₀-alkyl or C₁-C₁₀-alkoxy; C₆-C₁₀-aryl optionally substituted by halo, hydroxy, C₁-C₁₀-alkyl, phenoxy, C₁-C₁₀-alkylthio, C₆-C₁₀-aryl, a 4- to 10-membered heterocyclic ring having at least one ring nitrogen atom, or by NR^bR^c where R^b and R^c are each independently C₁-C₁₀-alkyl optionally substituted by hydroxy or phenyl or R^b may additionally be hydrogen; phenoxy optionally substituted by C₁-C₁₀-alkoxy; a 4- to 10-membered heterocyclic ring having at least one ring nitrogen or oxygen atom, said heterocyclic ring being optionally substituted by C₁-C₁₀-alkyl, C₆-C₁₀-aryl, C₇-C₁₄-aralkyl, C₁-C₁₀-alkoxycarbonyl or by a 4- to 10-membered heterocyclyl-C₁-C₁₀-alkyl; -NR^dR^e where R^d is hydrogen or C₁-C₁₀-alkyl and R^e is C₁-C₁₀-alkyl, or R^e is a 4- to 10-membered heterocyclic ring having at least one ring nitrogen or oxygen atom which ring is optionally substituted by halo-substituted phenyl or R^e is C₆-C₁₀-arylsulfonyl optionally substituted by di(C₁-C₁₀-alkyl)amino; -SR^f where R^f is C₆-C₁₀-aryl or C₇-C₁₄-aralkyl optionally substituted by halo or C₁-C₁₀-haloalkyl; or -CONHR^g where R^g is C₃-C₁₀-cycloalkyl or C₆-C₁₀-aryl.

3. A compound according to claim 2, in which

X is -R¹-Ar-R² or -R^a-Y;

Ar denotes a phenylene group optionally substituted by halo, C₁-C₄-alkyl, C₁-C₄-alkoxy or by C₁-C₄-alkoxy substituted by phenyl;

R¹ and R² are attached to adjacent carbon atoms in Ar, and either R¹ is C₁-C₄-alkylene and R² is hydrogen,

or R¹ and R² together with the carbon atoms in Ar to which they are attached denote a 5-, 6- or 7-membered cycloaliphatic ring, especially a 5-membered cycloaliphatic ring;

R^a is a bond or C₁-C₄-alkylene optionally substituted by hydroxy, C₆-C₈-aryl or C₇-C₁₀-aralkyl; and

Y is C₁-C₄-alkyl, C₁-C₄-alkoxy or C₂-C₄-alkynyl; C₃-C₆-cycloalkyl optionally fused to one or more benzene rings and optionally substituted by C₁-C₆-alkyl, C₃-C₆-cycloalkyl, C₇-C₁₀-aralkyl, C₇-C₁₀-aralkyloxy optionally substituted by halo, or by C₆-C₈-aryl optionally substituted by C₁-C₄-alkyl or C₁-C₄-alkoxy; C₆-C₈-aryl optionally substituted by halo, hydroxy, C₁-C₄-alkyl, phenoxy, C₁-C₄-alkylthio, C₆-C₈-aryl, a 4- to 8-membered heterocyclic ring having at least one ring nitrogen atom, or by NR^bR^c where R^b and R^c are each independently C₁-C₄-alkyl optionally substituted by hydroxy or phenyl or R^b may additionally be hydrogen; phenoxy optionally substituted by C₁-C₄-alkoxy; a 4- to 8-membered heterocyclic ring having at least one ring nitrogen or oxygen atom, said heterocyclic ring being optionally substituted by C₁-C₄-alkyl, C₆-C₈-aryl, C₇-C₁₀-aralkyl, C₁-C₄-alkoxycarbonyl or by a 4- to 8-membered heterocyclyl-C₁-C₄-alkyl; -NR^dR^e where R^d is hydrogen or C₁-C₄-alkyl and

R^e is C_1 - C_4 -alkyl, or R^e is a 4- to 8-membered heterocyclic ring having at least one ring nitrogen or sulphur atom which ring is optionally substituted by halo-substituted phenyl or R^e is C_6 - C_8 -arylsulfonyl optionally substituted by di(C_1 - C_4 -alkyl)amino; $-SR^f$ where R^f is C_6 - C_8 -aryl or C_7 - C_{10} -aralkyl optionally substituted by halo or C_1 - C_4 -haloalkyl; or $-CONHR^g$ where R^g is C_3 - C_6 -cycloalkyl or C_6 - C_8 -aryl.

4. A compound according to claim 1 in free or salt or solvate form, wherein X is $-R^1-Ar-R^2$ or $-R^a-Y$;

Ar denotes a phenylene group optionally substituted by halo, hydroxy, C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy, C_1 - C_{10} -alkoxy- C_1 - C_{10} -alkyl, phenyl, C_1 - C_{10} -alkyl substituted by phenyl, C_1 - C_{10} -alkoxy substituted by phenyl, C_1 - C_{10} -alkyl-substituted phenyl or by C_1 - C_{10} -alkoxy-substituted phenyl; R^1 and R^2 are attached to adjacent carbon atoms in Ar , and

either R^1 is C_1 - C_{10} -alkylene and R^2 is hydrogen, C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy or halogen or R^1 and R^2 together with the carbon atoms in Ar to which they are attached denote a 5-, 6- or 7-membered cycloaliphatic ring;

R^a is a bond or C_1 - C_{10} -alkylene optionally substituted by hydroxy, C_1 - C_{10} -alkoxy, C_6 - C_{10} -aryl or C_7 - C_{14} -aralkyl; and

Y is C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy, C_2 - C_{10} -alkenyl or C_2 - C_{10} -alkynyl optionally substituted by halo, cyano, hydroxy, C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy or halo- C_1 - C_{10} -alkyl; C_3 - C_{10} -cycloalkyl optionally fused to one or more benzene rings and optionally substituted by C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy, C_3 - C_{10} -cycloalkyl, C_7 - C_{14} -aralkyl, C_7 - C_{14} -aralkyloxy or C_6 - C_{10} -aryl optionally substituted by halo, hydroxy, C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy or halo- C_1 - C_{10} -alkyl; C_6 - C_{10} -aryl optionally substituted by halo, hydroxy, C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy, C_1 - C_{10} -haloalkyl, phenoxy, C_1 - C_{10} -alkylthio, C_6 - C_{10} -aryl, 4- to 10- membered heterocyclic ring having at least one ring nitrogen, oxygen or sulphur atom, or by NR^bR^e where R^b and R^e are each independently C_1 - C_{10} -alkyl optionally substituted by hydroxy, C_1 - C_{10} -alkoxy or phenyl or R^b may additionally be hydrogen; phenoxy optionally substituted by C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy or by phenyl optionally substituted by C_1 - C_{10} -alkyl or C_1 - C_{10} -alkoxy; a 4- to 10-membered heterocyclic ring having at least one ring nitrogen, oxygen or sulphur atom, said heterocyclic ring being optionally substituted by halo, C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy, halo- C_1 - C_{10} -alkyl, C_6 - C_{10} -aryl, C_7 - C_{14} -aralkyl, C_7 - C_{14} -aralkyloxy, C_1 - C_{10} -alkoxycarbonyl or a 4- to 10-membered heterocyclyl- C_1 - C_{10} -alkyl; $-NR^dR^e$ where R^d is hydrogen or C_1 - C_{10} -alkyl and R^e is C_1 - C_{10} -alkyl optionally substituted by hydroxy, or R^e is C_6 - C_{10} -aryl optionally substituted by halo, or R^e is a 4-

to 10-membered heterocyclic ring having at least one ring nitrogen, oxygen or sulphur atom which ring is optionally substituted by phenyl or halo-substituted phenyl or R^e is C_6 - C_{10} -arylsulfonyl optionally substituted by C_1 - C_{10} -alkylamino or di(C_1 - C_{10} -alkyl)-amino;
 $-SR^f$ where R^f is C_6 - C_{10} -aryl or C_7 - C_{14} -aralkyl optionally substituted by halo, C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy or C_1 - C_{10} -haloalkyl; or
 $-CONHR^g$ where R^g is C_1 - C_{10} -alkyl, C_3 - C_{10} -cycloalkyl or C_6 - C_{10} -aryl.

5. A compound according to claim 4, in which

X is $-R^1-Ar-R^2$ or $-R^a-Y$;

Ar denotes a phenylene group optionally substituted by halo, C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy or by C_1 - C_{10} -alkoxy substituted by phenyl;

R^1 and R^2 are attached to adjacent carbon atoms in Ar , and either R^1 is C_1 - C_{10} -alkylene and R^2 is hydrogen,

or R^1 and R^2 together with the carbon atoms in Ar to which they are attached denote a 5-, 6- or 7-membered cycloaliphatic ring;

R^a is a bond or C_1 - C_{10} -alkylene optionally substituted by hydroxy, C_6 - C_{10} -aryl or C_7 - C_{14} -aralkyl; and

Y is C_1 - C_{10} -alkyl, C_1 - C_{10} -alkoxy or C_2 - C_{10} -alkynyl; C_3 - C_{10} -cycloalkyl optionally fused to one or more benzene rings and optionally substituted by C_1 - C_{10} -alkyl, C_3 - C_{10} -cycloalkyl, C_7 - C_{14} -aralkyl, C_7 - C_{14} -aralkyloxy or C_6 - C_{10} -aryl; C_6 - C_{10} -aryl optionally substituted by halo, hydroxy, C_1 - C_{10} -alkyl, phenoxy, C_1 - C_{10} -alkylthio, C_6 - C_{10} -aryl, a 4- to 10-membered heterocyclic ring having at least one ring nitrogen atom, or by NR^bR^c where R^b and R^c are each independently C_1 - C_{10} -alkyl optionally substituted by hydroxy or phenyl or R^b may additionally be hydrogen; phenoxy optionally substituted by C_1 - C_{10} -alkoxy; a 4- to 10-membered heterocyclic ring having at least one ring nitrogen or oxygen atom, said heterocyclic ring being optionally substituted by C_1 - C_{10} -alkyl, C_6 - C_{10} -aryl, C_7 - C_{14} -aralkyl, C_1 - C_{10} -alkoxycarbonyl or by a 4- to 10-membered heterocycl- C_1 - C_{10} -alkyl; $-NR^dR^e$ where R^d is hydrogen or C_1 - C_{10} -alkyl and R^e is C_1 - C_{10} -alkyl, or R^e is a 4- to 10-membered heterocyclic ring having at least one ring nitrogen or oxygen atom which ring is optionally substituted by halo-substituted phenyl or R^e is C_6 - C_{10} -arylsulfonyl optionally substituted by di(C_1 - C_{10} -alkyl)amino; $-SR^f$ where R^f is C_6 - C_{10} -aryl or C_7 - C_{14} -aralkyl optionally substituted by halo or C_1 - C_{10} -haloalkyl; or $-CONHR^g$ where R^g is C_3 - C_{10} -cycloalkyl or C_6 - C_{10} -aryl.

6. A compound according to claim 4, in which

X is $-R^1-Ar-R^2$ or R^a-Y ;

Ar denotes a phenylene group optionally substituted by halo, C₁-C₄-alkyl, C₁-C₄-alkoxy or by C₁-C₄-alkoxy substituted by phenyl;

R¹ and R² are attached to adjacent carbon atoms in Ar, and

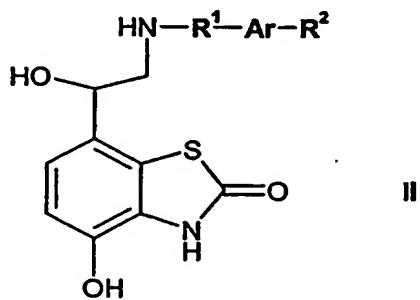
either R¹ is C₁-C₄-alkylene and R² is hydrogen,

or R¹ and R² together with the carbon atoms in Ar to which they are attached denote a 5-, 6- or 7-membered cycloaliphatic ring, especially a 5-membered cycloaliphatic ring;

R^a is a bond or C₁-C₄-alkylene optionally substituted by hydroxy, C₆-C₈-aryl or C₇-C₁₀-aralkyl; and

Y is C₁-C₄-alkyl, C₁-C₄-alkoxy or C₂-C₄-alkynyl; C₃-C₆-cycloalkyl optionally fused to one or more benzene rings and optionally substituted by C₁-C₄-alkyl, C₃-C₆-cycloalkyl, C₇-C₁₀-aralkyl, C₇-C₁₀-aralkyloxy or C₆-C₈-aryl; C₆-C₈-aryl optionally substituted by halo, hydroxy, C₁-C₄-alkyl, phenoxy, C₁-C₄-alkylthio, C₆-C₈-aryl, a 4- to 8-membered heterocyclic ring having at least one ring nitrogen atom, or by NR^bR^c where R^b and R^c are each independently C₁-C₄-alkyl optionally substituted by hydroxy or phenyl or R^b may additionally be hydrogen; phenoxy optionally substituted by C₁-C₄-alkoxy; a 4- to 8-membered heterocyclic ring having at least one ring nitrogen or oxygen atom, said heterocyclic ring being optionally substituted by C₁-C₄-alkyl, C₆-C₈-aryl, C₇-C₁₀-aralkyl, C₁-C₄-alkoxycarbonyl or by a 4- to 8-membered heterocyclic-C₁-C₄-alkyl; -NR^dR^e where R^d is hydrogen or C₁-C₄-alkyl and R^e is C₁-C₄-alkyl, or R^e is a 4- to 8-membered heterocyclic ring having at least one ring nitrogen or sulphur atom which ring is optionally substituted by halo-substituted phenyl or R^e is C₆-C₈-arylsulfonyl optionally substituted by di(C₁-C₄-alkyl)amino; -SR^f where R^f is C₆-C₈-aryl or C₇-C₁₀-aralkyl optionally substituted by halo or C₁-C₄-haloalkyl; or -CONHR^g where R^g is C₃-C₆-cycloalkyl or C₆-C₈-aryl.

7. A compound according to claim 1 that is also a compound of formula II

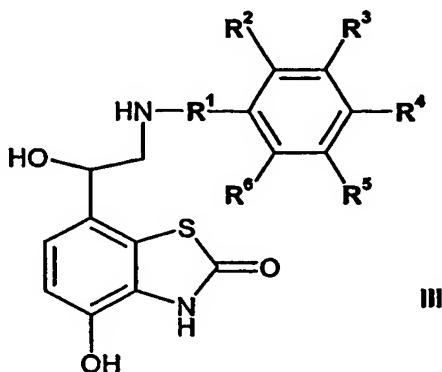


in free or salt or solvate form, where

Ar denotes a phenylene group optionally substituted by one or more substituents selected from halogen, C₁-C₈-alkyl, C₁-C₈-alkoxy, C₁-C₈-alkoxy-C₁-C₈-alkyl, or C₁-C₈-alkoxy substituted by phenyl, C₁-C₈-alkyl-substituted phenyl or by C₁-C₈-alkoxy-substituted phenyl,

R¹ and R² are attached to adjacent carbon atoms in Ar, and either R¹ is C₁-C₈-alkylene and R² is hydrogen, C₁-C₈-alkyl, C₁-C₈-alkoxy or halogen or R¹ and R² together with the carbon atoms in Ar to which they are attached denote a 5-, 6- or 7-membered cycloaliphatic ring.

8. A compound according to claim 7 that is also a compound of formula III



in free or salt or solvate form, where R¹ is C₂-C₄-alkylene and R² is hydrogen, or R¹ and R² together with the carbon atoms to which they are attached on the indicated benzene ring denote a 5-membered cycloaliphatic ring, R³ and R⁶ are each hydrogen, R⁴ is hydrogen, C₁-C₄-alkyl, C₁-C₄-alkoxy or C₁-C₄-alkoxy substituted by phenyl and R⁵ is hydrogen or C₁-C₄-alkyl.

9. A compound of formula I as defined in claim 1, substantially as described in any one of the foregoing Examples.

10. A compound according to any preceding claim for use as a pharmaceutical.

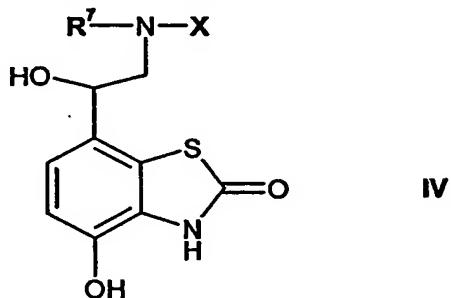
11. A pharmaceutical composition comprising as active ingredient a compound according to any one of claims 1 to 9, optionally together with a pharmaceutically acceptable diluent or carrier therefor.

12. Use of a compound according to any one of claims 1 to 9 for the manufacture of a medicament for the treatment of a condition which is prevented or alleviated by activation of the β_2 -adrenoreceptor.

13. Use of a compound according to any one of claims 1 to 9 for the manufacture of a medicament for the treatment of an obstructive or inflammatory airways disease.

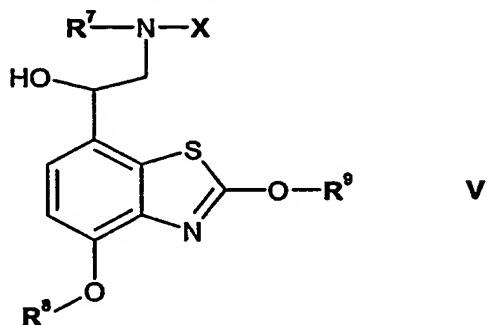
14. A process for the preparation of a compound of formula I as claimed in claim 1 which comprises:

(i) either (A) reacting a compound of formula IV



where X is as defined in Claim 1 and R⁷ denotes a protecting group, to replace R⁷ by hydrogen,

or (B) reacting a compound of formula V



where X and R⁷ are as hereinbefore defined and R⁸ and R⁹ each independently denote a protecting group, to convert groups R⁷, R⁸ and R⁹ to hydrogen; and

(ii) recovering the compound of formula I in free or salt or solvate form.